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## **Maritime Information Databank – A Suggested Model**

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### **Abstract**

As a part of continuing research, it is important for any country to identify technological advances in any field and create a national trust of information for use by researchers and general users. With reference to the marine sector, which is a prime sector for the development of any country, it is essential to create such data banks of information to cater to the needs of ship builders, ship owners and the researchers. This article discusses few of the processes involved for the creation of a maritime data bank.

**Keywords: Databank, Maritime Information, Marine Services**

### **1 Introduction**

In these current days of Globalisation and competition associated with almost all facets of day to day life and business, there is a need for right information at the right time. With so much of information available on internet, it is very difficult to identify the right one. Therefore it is necessary that each sector of information needs to be classified, researched, verified and authenticated to become dependable and readily usable/ acceptable. In this connection concepts of developing a data banks is a well identified one, provided the same is fluidic to get updated with every small but effective change. Maritime sector being an International Sector, all the information needs to be drawn from all across the globe, collated after authentication in order to make an effective databank.

### **2 Definition and Concept of Maritime**

‘Maritime’ can be defined as matters connected with the sea, especially in relation to seaborne trade or navies. These can be nature related, human related, territory related, jurisdiction related etc. Today, we live in a society supported by a global economy, which simply could not function if it were not for shipping. Shipping serves global trade by

carrying huge quantities of cargo, all over the world, cost-effectively, cleanly and safely. Establishing a sustainable maritime transportation sector is essential to the development and growth of the world's economy (1).

### **3 Maritime History & Trade in India**

India has a very rich maritime history dating back to the 3rd millennium BCE when the denizens of the Indus Valley civilization initiated maritime trading contacts with Mesopotamia. The world's first dock at Lothal in modern Gujarat (2400 BCE) was located away from the main sea currents to avoid deposition of silt, thereby indicating possession of considerable knowledge of oceanography, hydrography and maritime engineering. Kingdoms on the west coast of India engaged in active sea trade with ancient Persia, Arabia and Egypt, and through them with ancient Greece and Rome (2).

Indian Maritime Trade depends on water bodies of the country. India is almost an island as far as trade is concerned. The country also shares maritime boundaries with seven nations in the Indian Ocean. India has a coastline of over 7500 km, and a population of over 1 billion (one-seventh of the world population) is dependent, directly or indirectly, on the marine resources available along its exclusive economic zone (EEZ). Its strategic geographical position with a long coastline acts as a great advantage in the maritime trade field.

The Indian Peninsula juts into the Indian Ocean, covering major shipping lanes of the world, providing the shortest route between the Atlantic Ocean and the Pacific Ocean. Indian trade taking place through the sea-lines of communication (SLOC) or maritime trade routes join the major regions in the western and eastern part of the world. Seaborne trade passing through the Indian Ocean has amounted to almost 15 percent of the entire world trade (3).

India has about 7516 kilometers of coastline serviced by a total of 182 ports, 12 of them under a special status as Major Ports being under the purview of the Central Government. Seventy other ports termed as minor ones come under the jurisdiction of the respective State Governments. Ennore in Tamil Nadu has been declared as the 12th Major Port (4).



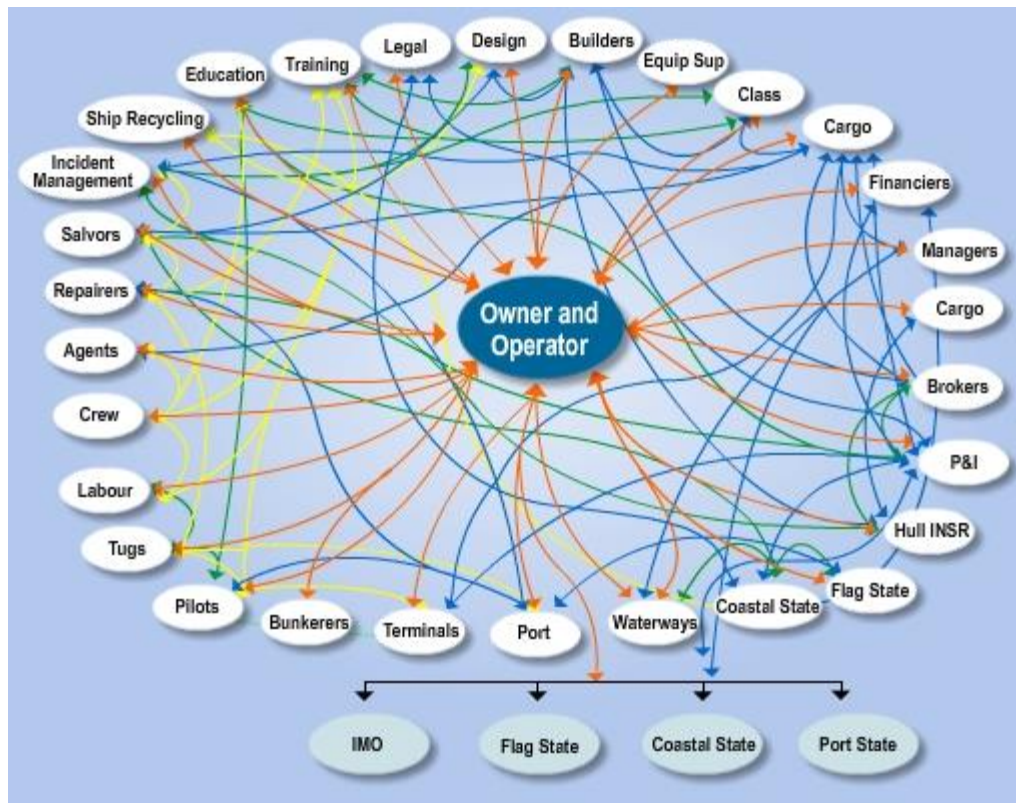
Maritime borders of India (<https://images.google.com>)

#### 4 Definition and Concept of Maritime Information

Information is related to data and knowledge. Information reduces uncertainty. Data that is (1) accurate and timely, (2) specific and organized for a purpose, (3) presented within a context that gives it meaning and relevance, and (4) can lead to an increase in understanding and decrease in uncertainty. Information is valuable because it can affect behavior, a decision, or an outcome (5).

In an international sector as diverse and as varied as Maritime there are hundreds of activities taking place round the clock all over the world. Further maritime information is highly fluidic in nature with inputs varying rapidly depending upon business trends, economies of the regions, civil and political affairs of the regions to name a few.. Therefore information pertaining to Maritime has to be on real-time basis.

Maritime being an International subject the resources of information are multifold and for a typical commercial operator the flow of information can be multiple sources and rapidly changing. Nature related information such as cyclones, weather conditions for high sea operations, the information flows from International, National and local bodies. Maritime Resources and its components can also be multi lingual.



Maritime Directory

(Source: <https://www.maritimeinfo.org/en/Maritime-Directory/>)

## 5 Rationale

There are many sources giving information on equipment, details of ship yards, ship owners, port trusts, suppliers, Classification Societies, Statutory and Regulatory authorities, consultants, agencies, Classification Societies, Research Bodies, etc. collect them, segregate and collate and make it available in electronic format to various user groups.

6 The **DATABANK** (a web based application software) can consist of following 4 modules:

- Ship Design
- Shipyards
- Ports & Terminals
- Marine Equipment, Materials & Products

### **6.1 The First module - Ship Design**

This module will particularly consist of data on all ships built in India from a selected year. The principal aim to maintain this data bank is to store and retrieve ships data that are/were manufactured at various shipyards in India. This data bank contains information related ships such as ship name, builder name (i.e. shipyard name), hull number, ship dimensions, important dates in ship construction (i.e. Contract Sign date, keel laid date, launched date, completed date, delivery date) etc. The search is based on certain criteria like DWT, Ship name, ship type etc.

### **6.2 The Second module – Shipyards**

This module will contain data of all the shipyards in India. This module lists out the corporate information details of the shipyards and their facilities i.e. shipbuilding yard facilities, the ship repair yard facilities and the services provided by them. There could also be a link representing the static web pages of the shipyard. Search is based on criteria like shipyard name, place etc.

### **6.3 The Third Module - Ports & Terminals**

This module is meant for maintaining the data of all major and minor ports of India. It lists out the details of the corporate information of the Ports, Ports description, Pre arrival information, Navigation and the facilities they provide like berths and cargo and general information. There could also be a link representing the static web pages of the Port. Information on the following like -

- Port Engineering & Consultancy Services
- Inland Waterways
- Inland Water transport/ Coastal Shipping
- Port Terminal Operators
- Port Services like – Towage and Salvage
- Underwater Services
- Bunkering, Fresh Water Services

- Dredging Services
- Lighterage operations

Search is based on criteria like Port name or cargo handled by the port etc.,

#### 6.4 The Fourth Module Marine Equipment, Materials & Products

This module will consist of data on all the marine related equipment manufacturers in India. It lists out the mailing address, details of equipment they manufacture and list out the shipbuilding and repair equipment and materials they supply. It serves as a Maritime Directory.

The search criteria may be based on

- Equipment manufacturer / supplier (Vendor) main category, subcategory and / or Equipment Manufacturer / Supplier (Vendor) name
- By product list supplied by the Equipment Manufacturer / Supplier (Vendor)

Provision to update / add details pertaining to their respective modules in the databank by Ship yards, Ports, Equipment Manufacturers / Suppliers and Service providers etc.,

#### 7 The **DATABANK** may be extended to provide information related to:

1. Academic/ Maritime Training Institutes (Government and Private institutions offering maritime courses)
2. Marine related Association Information such as
  - a. Marine Engineering Association details
  - b. Naval Architects Association details
  - c. Structural Designer details
  - d. Ship Owners Club Association etc.,
3. Maritime Services like:
  - 3.1 Shipbuilding, Shipping and Shipping Services: (Ship builders, Ship Repairers, Ship Owners, Boat Builders and Engineers, Barge Builders/ owners/ operators, Fishing Trawler Operators/Owners, Shipping Brokers (agents), Steamer Agents, Ship Charterers, Ship Breakers/ Demolition, Manning (Crewing) Agencies, Ship Chandlers, Ship stores/ Suppliers, Ship Surveyors (Hull and Machinery, Marine

Insurance Surveyors, Ship Repairs/ Servicing of Marine Equipment, Ship Management Agencies,

- 3.2 Cargo Handling and Container Services: (Clearing & Forwarding Agents, Stevedores, Freight Brokers (agents), Freight Forwarders, Custom House Agents, Container Manufacturers/ Repairers, Container Handling, Container Leasing, Container Filling, Cargo Consolidation, Container Surveyors, Multimodal Operators, Transport Logistic Operators, Cargo Surveyors, Cargo Insurance Claims, Warehousing, P & I agents,
4. Maritime Organisations (Ship Registers/ Classification Societies, Maritime Boards)
5. Marine Engineers, Marine Consultants, Naval Architects
6. Ocean Research/ Institutes
7. Offshore Services: (Offshore Engineering/ Consultancy Services/ Research, Offshore Drilling/ Exploration/ Production, Offshore Services
8. A database of intramural R&D projects can be developed. This database would provide information on R&D projects in Marine institutions/ Industry of central and state government, private and public sector undertakings and academic institutions covering disciplines ranging from Marine, Offshore, and shipping industry.
9. The updated database will be extremely useful to organisations and individuals for identifying areas of research and subject specialists and will help in optimal utilisation of government funds.
10. The data about the new/ongoing/completed research projects can also be displayed.

## **8 Data Collection**

- Data can be collected through questionnaire for various groups, like Shipyards, Ports and Manufacturer.
- It is necessary to contact the Shipyards, Ports, Agencies, individuals and collect data / information and segregate the same into different categories for the purpose of easy retrieval.
- It is needed to study the various documents, books, journals, information sources, etc. and to judge the use of the same. The information collected has to be verified for authenticity before adding to the Data Bank.



- A team of specialists from various fields are required to continuously monitor the published data, visit sites, where necessary for collection of data and interact with Governmental and private agencies for permissions to collect the same. Data is sometimes available free but most of the times, it may have to be purchased.

## **9 Data organization and Customization**

- The information / data collected are to be read, understood and converted into electronic formats where necessary.
- It is also necessary to decide upon the usefulness of the data.
- When only hard copies are available, the same are to be converted into electronic form and then stored in the data bank.
- A separate group to work on the conversion of this data into electronic format
- Retrieve of data at all times through internet services or other means.

### **Alternatively,**

- The yards and ports can be given online access to some of the data entry screens so that the information/ data can be uploaded directly and instantaneously thereby avoiding delays and mistakes.
- Public can be given access to databank on a payment of nominal fee.
- Links can be provided to Equipment Manufacturers websites.
- Similarly, Equipment Manufacturers can advertise on the web page of the **DATABANK**. Thereby some amount of revenue is generated.
- A repository of Thesis submitted in all maritime related colleges and universities in India can also be incorporated.

## **10 Dissemination of Data in different forms:**

- The data could be sometimes provided in the form of CDs, AutoCAD files, Photographs, Brochures etc.
- The e-copy of the information/ data could be sent by email.

## **11 Steps involved in programming:**

- Software Requirement Specification
- Creation of Tables
- Data Entry
- Databank Updating
- Search and Retrieve Option
- Provide Authorization Both Internal & External
- Coding
- Web Hosting

## **12 Data Flows**

The web based application software should consists of many user interfaces to manage data. It should provide interfaces for managing user's roles, Ship Data, Shipyard Data, Port Data and Maritime Directory Data. All these data management interfaces should provide options to add, edit, delete and view data at various levels to various user levels.

## **13 User Access Levels**

1. Super Administrator
2. Ship Data Administrator
3. Ship Yard Data Administrator
4. Ports Data Administrator
5. Manufacturer Directory Administrator
6. External User (with authentication, for eg., shipyards or manufacturers who will update their data on web)
7. Internal User (Databank Management team members)
8. Public User

The databank will ultimately have huge data on various aspects of maritime. Since it is going to be very useful information and also the information/ data is so volatile in nature, it is necessary to have a dynamism to update the databank regularly so that the information is dynamic instead of static.

## **14 Benefits from the Databank**

The databank would benefit the following organizations in maritime sector:

- Ship Owners (viz., Andaman & Nicobar Administration, Private Ship Owners)
- Port Trusts, Dredging Corporation of India, etc.
- Ship Builders (viz. HSL, CSL, etc)
- Ship Design, Research & Consultancy Organizations
- Researchers, Academicians
- Maritime Educational Institutions
- Other organizations like NIOT, NSTL who are working in marine field
- ONGC
- Classification Societies.
- Director General of Shipping.
- Ministry of Shipping
- Ministry of Defence, Indian Navy

It would help the researchers in the following way

- Evaluate growth pattern of Indian Shipping
- Know the key players in Indian Shipping
- Analysis of current shipbuilding activity in India
- Order book position of each yard

## **15 Library's role in Storing and Channelizing this Information**

Major maritime related organizations, academia and Maritime institutions, training centres and Maritime Universities are attached with library with rich collection on maritime information, valuable technical data sources, Online resources etc., Some of the maritime related organisations have the expertise and experience in handling the bigdata. Libraries play a great role in creating metadata and storing the information for retrieval through various means.

## **16 Conclusion**

With the advent of powerful search engines being available on the internet, a lot of unclassified information is available all across. However a person attempting to know about some things gets drawn away with this sea of information. Sometimes the information may be real and sometimes may not be. Therefore in a sector like maritime correct and authentic information is very much necessary to avoid wastage of precious resources of time and money. A real time data base that is being constantly upgraded with real time data will be highly beneficial for maritime world and persons concerned with the same, in the whole world where 90% of everything used by the populace is transported by the ships.

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